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09/090,429	06/04/98	KALTHOFF	T 0437-A-212

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EXAMINER

AWAD, A

ART UNIT	PAPER NUMBER
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2775

DATE MAILED: 08/15/00

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**



# Office Action Summary

Application No.  
09/090,429

Applicant(s)  
Kalthoff et al.

Examiner  
Amr Awad

Group Art Unit  
2775



☒ Responsive to communication(s) filed on May 23, 2000

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claims

☒ Claim(s) 1-10 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 1-9 is/are rejected.

☒ Claim(s) 10 is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been  
☐ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---



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## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kerth et al (US patent NO. 5,717,321; hereinafter referred to as Kerth)..

As to claim 1, Kerth (figure 6) teaches a touch screen digitizing system including a touch screen unit (70) including first resistive sheet (75) with opposed first terminal (51), a second terminal (50), and a second resistive sheet (74) with opposed third terminal (52), fourth terminal (53), and an analog to digital converter (78) having a first and second input terminal (+Vref & - Vref). Kerth teaches a first switch (80) coupled between a first reference voltage (GND) and the second terminal (50), and a second switch (79) coupled between the first terminal (51) and the second reference voltage (Vs) for energizing the first resistive sheet (75). Kerth teaches a third switch (76) coupled between the first reference voltage (GND) and the fourth terminal (53), and a fourth switch (73) coupled between the third terminal (52) and the second reference voltage (Vref) for energizing the second resistive sheet (74).

Kerth also teaches a switching circuitry (77) for coupling an input of the analog to digital converter to the third terminal (52) while the first resistive sheet is energized and the second



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resistive sheet is not energized (note the position of all (Sx) and (Sy) switches connecting the two resistive sheets to the input of the analog to digital convertor, whereas, the (Sx) switches energizing the first resistive sheet are opened, the (Sy) switches energizing the second resistive sheet are closed), and for coupling the input of the first terminal (51) while the second resistive sheet is energized while the first resistive sheet is not energized (note the position of all (Sx) and (Sy) switches connecting the two resistive sheets to the input of the analog to digital convertor, whereas, the (Sx) switches energizing the first resistive sheet are opened, the (Sy) switches energizing the second resistive sheet are closed); see column 8, line 47 through column 9, line 50. Also see the detailed figure (6) provided by the Examiner.

Kerth does not teach that the second switch connected directly between the first terminal and the second reference voltage, and that the fourth switch connected directly between the third terminal and the second reference voltage.

However, since both structures (Applicant's device and Kerth's device), perform the same function, omission of an element and its function in a combination is an obvious expedient if the remaining element perform the same function as before. IN re Nelson, 40 CCPA 708, 198 F. 2d 837, 95 USPQ 82; In re Eliot, 22 CCPA 1088, 76 F. 2d 309, 25 USPQ.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Kerth's device to omit the current DAC (72) since the function of the device will remain the same.

As to claim 2, method claim 2 corresponds to apparatus claim 1 and is analyzed as previously discussed with regard to apparatus claim 1.



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As to claim 3, the apparatus claim 3 is substantially similar to apparatus claim 1 except that the first and second terminals are replaced with x+ and x-, and the third and fourth terminals are replaced with y+ and y- terminal. As can be seen from figure 6, Kerth teaches having x+, x-, y+ and y- terminals.

As to claim 9, method claim 9 corresponds to apparatus claim 3 and is analyzed as previously discussed with regard to apparatus claim 3.

As to claim 4, Kerth teaches that the first and third switches (76 & 80) are NMOS transistors, and the second and fourth switches (73 & 79) are CMOS transistors.

As to claim 5, note the discussion of Kerth above. Kerth further teaches that the resistive sheets has a resistance in the range from 500 to 1000 ohms (within the range of 300 to 2000 ohms). Kerth does not expressly teaches that each of the P-channel transistors has an on channel resistance in the range of 5 to 50 ohms. However, as discussed by the applicant in the specification (bottom of page 14 and top of page 15) that the range of the resistance varies because of the manufacturing variations and temperature variations.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the resistance of the P-channel transistors within the range of (5 to 50 ohms as being part of the manufacturing requirement and of the temperature variation.

3. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kerth in view of Flowers (US patent NO. 5,877,458).



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Note the discussion of Kerth above. Kerth does not expressly teaches a microprocessor and circuitry responsive to an initial touching of the touch screen to generate control information representative of control signals to be respectively applied to various switches and to a convert input of the analog to digital convertor.

Flowers (figure 4) teaches a surface position location system that includes a microprocessor (142) connected to analog to digital converter (146), a signal generator (122), and a plurality of switches (132 & 136). The switches are controlled via cables (138 & 140) from the microprocessor (142) to select which of the contacts (102, 104 and 106) receives a signal. See column 11, lines 4-43.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include a microprocessor taught by Flowers so as to translate the stylus touch into a signal to determine the position of the touch.

4. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kerth and Flowers as applied to claim 7 above, and further in view of Ong et al (US patent NO. 5,736,949; hereinafter referred to as Ong).

Note the discussion of Kerth and Flowers above. Kerth (figure 6) also teaches a current digital to analog convertor (72), a registers (91) and (92). Kerth however does not teach that the analog converter is a successive approximation analog to digital converter.



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Ong teaches having a successive approximation analog to digital converter. Ong also teaches that the successive approximation analog to digital converter is used with binary logic such as a counter that applies a digital code to the digital-to-analog converter. The analog output of the digital-to-analog converter has an amplitude that is proportional to the difference of two references and the proportion is determined by the value of the digital code; see figure 2a, and column 1, line 63 through column 2, line 7.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use Ong's teaching of having a successive approximation analog to digital converter to Kerth's modified device so as motivated by Ong to apply a digital code to the digital to analog converter.

***Allowable Subject Matter***

5. Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

6. Applicant's arguments filed May 23, 2000 have been fully considered but they are not persuasive.



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Applicant (page 4-5) argued that the amendment to all independent claims recites that the second switch is connected directly between the first terminal and the second terminal reference voltage, and that the fourth switch is connected directly between the third terminal and the second reference voltage. As indicated in the office action above, since both structures (Applicant's device and Kerth's device), perform the same function, omission of an element and its function in a combination is an obvious expedient if the remaining element perform the same function as before. IN re Nelson, 40 CCPA 708, 198 F. 2d 837, 95 USPO 82; In re Eliot, 22 CCPA 1088, 76 F. 2d 309, 25 USPO. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Kerth's device to omit the current DAC (72) since the function of the device will remain the same.

Applicant (page 5) argued that the alleged invention has superiority over Kerth's device because the voltage of the x+ terminal 50 clearly tracks precisely within variations in +Vcc as a result of the direct connection referred to. similarly with the terminal 52. Examiner asserts that if the evaluation of the invention as a whole is obvious, evidence of superior results does not preclude the finding of obviousness; In re Lindell, 155 USPQ 521 (CCPA 1967). Examiner also asserts that arguments or conclusion statements unsupported by factual evidence are insufficient to establish unexpected results; In re Lindell, 173 USPQ 332 (CCPA 1977). Applicant shows no evidence that simply by removing the DAC (72), a superior results will be obtained.

As to Applicant's argument (middle of page 6) that in Flowers reference, the switches operated by the processor function to select which combinations of the three or more contact



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points of the single resistive layer are energized at any particular time, and do not operate to select which of the two resistive layers is being energized. The examiner asserts that this limitations is part of the independent claims which is originally rejected using Kerth and Flowers was cited to teach the added limitations of claims 6-7.

### *Conclusion*

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

8. **Any response to this final action should be mailed to:**

Commissioner of Patents and Trademarks



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Washington, D.C. 20231

**or faxed to:**

(703) 308-9051, (for formal communications intended for entry)

**Or:**

(703) 308-6606, (for informal or draft communications, please label

"PROPOSED" or "DRAFT")

hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).


9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amr Awad whose telephone number is (703) 308-8485. The examiner can normally be reached on Monday--Friday from 7:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Saras, can be reached on (703) 305-4718.

*Amr A. Awad*

Patent Examiner

August 8, 2000.

  
DENNIS-DOON CHOW  
PRIMARY EXAMINER